Control and Prevention Tuberculosis Project
FHI 360
China and Thailand

FY2015 Annual Performance Report
(October 1, 2014 – March 31, 2015)

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Narrative: Executive Summary

In its fourth year of implementation, the USAID Control and Prevention-Tuberculosis (CAP-TB) Project prioritized scale up of the project's model and measurement of its impact on key outcomes for tuberculosis (TB) and multi-drug resistant tuberculosis (MDR-TB) control. The results for China and Thailand implementation will be reported in this Annual Progress Report (APR) for Fiscal Year (FY) 15; Burma results will be reported separately, in CAP-TB Burma's final report since implementation is ending in Burma by 31 December 2015.

The CAP-TB model for MDR-TB control is a patient-centered, community-driven strategy to strengthen TB platforms. The model standardizes the approach to MDR-TB control in China and Thailand to identify the priority gaps in each setting and develops solutions to address these gaps that are patient-centered. The model also prioritizes community-driven solutions, with the goal toward sustainability, cost-effectiveness and capacity-building at the grassroots level—the patients, households, and communities who are affected by MDR-TB.

Summary of Achievements: China

Changing behavior by adopting a new paradigm for communication

CAP-TB has developed a patient-centered approach to impact behavior, with the goal to improve compliance and maximize treatment success for tuberculosis and drug-resistant tuberculosis. Changing the paradigm for how providers and patients communicate has been a critical success for the project. CAP-TB has pursued a bidirectional communication strategy: 1) to impact providers' understanding of their patients' perspectives and 2) to improve patients' comprehension of their disease. This strategy has been implemented through traditional small-group training as well as through social media. The project's success in effecting behavior change is one of the key factors responsible for good treatment success rates in Yunnan that are higher than the national average in China, with potential for 2014-2015 cohorts to exceed the WHO's standard of 75%. Table 1 (below) shows treatment outcomes for cohorts from 2012 – 2015. The 2012 cohort has a treatment success rate of 53%, higher than the China national average of 49% and exceeding results reported by some of the best hospitals in the country. If all patients in the 2013 cohort complete treatment (11 currently still on treatment), the treatment success rate will be >75%. Keeping patients on treatment is one of the biggest challenges for MDR-TB treatment; the project currently has very high retention rates for 2014-2015 cohorts, which is very promising. These high rates for MDR-TB registration, treatment initiation, and retention are even seen post-funding from the Global Fund, a strong indicator that even though cost is an issue, patients can be influenced to understand the importance of treatment and compliance.

Table 1.

Treatment results	2012	2013	2014	2014 - post Global Fund	2015 (as of Aug)	Total
Treatment success (cure and completion)	10 (53%)	13 (42%)	0	0	0	23
Loss to follow-up	6 (31.5%)	4 (13%)	3 (11%)	0	2 (7%)	15
Deceased	1 (5%)	0	1 (4%)	0	0	2
Failure	2 (10.5%)	3 (10%)	2 (7%)	0	0	7
On treatment	0	11 (35%)	21 (78%)	14 (100%)	27 (93%)	73
Total number of patients registered	19	31	27	14	29	120

Leveraging social media to develop virtual communities for patients with TB and MDR-TB

Rapid developments in technology have introduced opportunities to reach patients more effectively. Developing a strong foundation for communication and a trusting relationship are critical to support MDR-TB patients throughout their long, 24-month treatment regimen. Social media is a very popular method of communication throughout China, and CAP-TB leveraged this momentum by creating "57 Zone" using QQ, which is China's most popular social media and instant messaging platform. 57 Zone now has over 900 members from Yunnan Province and throughout China. Along with the new paradigm for provider-patient communication and intensive counseling for newly diagnosed patients to ensure full comprehension of their diagnosis and treatment, the CAP-TB social media strategy has made a significant impact on patients' lives. It is likely that all of these methods for communication to impact behavior have contributed to the high treatment success rates in Yunnan, China.

Developing and strengthening linkages within the China health system to improve continuity of patient care, with the goal to keep patients on treatment.

China's health system reform has been ongoing for the past several years, with one of the primary reform initiatives significantly impacting tuberculosis: shifting responsibility for TB control from the public health sector to the clinical sector. There are three primary sectors of the China health system: clinical, public health, and community, and all three must work together to provide maximum quality of care for patients. In most settings throughout China, the clinical and public health sectors are completely disconnected, thus patients who are diagnosed in the clinical (hospital) setting are often lost to follow-up as soon as they return to their homes and communities. The CAP-TB project, working in close collaboration with its public health and clinical partners in Yunnan Province, developed a successful system to link the health system sectors. The system is based upon maximizing information exchange among each of the sectors, which is done through regular team meetings; forming social media (QQ) groups among the health care providers to facilitate rapid communication; and utilizing a secure, cloud-based system to exchange and update patient information. Building relationships and facilitating information exchange are both critical to the process.

After developing the health system linkages strategy in the urban setting, the CAP-TB project adapted this strategy to a rural, poor county in Yunnan, demonstrating the model's capacity to be implemented in different settings. This point is critical when considering expansion of the CAP-TB model throughout China, further discussed below.

Demonstrating adaptability and replicability of the CAP-TB model through scale-up to rural Zhenxiong County, Yunnan Province, and Xinjiang Province

The overarching goal of the CAP-TB project is to develop a model for MDR-TB control and prevention that can be scaled up, both in the Asia Pacific region and beyond. The first step for scale-up is to expand the project's implementation within each country, and this is being done successfully in China. As a first step, CAP-TB adapted its model, which was originally developed for the urban setting of Kunming (the capital city of Yunnan Province) to the rural setting. This is particularly relevant for Yunnan, since the TB prevalence is higher in the rural areas of the province, likely driven by poverty. Zhenxiong County in Yunnan has the highest case notification rate for tuberculosis in Yunnan, and it is one of the poorest and most remote counties in the province. Working closely with CAP-TB's partners in Yunnan, the project expanded activities to Zhenxiong, replicating the health system approach (linking hospital, public health, and community sectors) as well as building community and impacting behavior through social media groups (57 Zone). Outside of Yunnan Province, the project has supported Xin Jiang Province to create 57 Zone Xin Jiang, which has seen rapid engagement from patients and providers.

Summary of Achievements: Thailand

Strengthening multi-disciplinary teams to build skills at the provincial level to facilitate "decentralization" of expertise from central to provincial Thailand.

CAP-TB's approach in Thailand has centered on building multi-disciplinary teams at the provincial level to strengthen expertise for managing MDR-TB. The country has tried to "decentralize" MDR-TB expertise from the central (Bangkok) to the provincial level over the past several years, with variable success. As a result, treatment success for MDR-TB in Thailand is 49%, largely due to difficulties in retaining patients on treatment and ensuring compliance with medications. The project's strategy in Thailand is focused on building technical skills and strengthening the TB network at the provincial level: improving communication between all levels of the TB network---from provincial, to district, sub-district, and village levels. CAP-TB focused implementation initially in Rayong Province, which has the 3rd highest case notification rate for MDR-TB in the country, and expanded to Kanchanaburi Province during FY15. Treatment success rates for Rayong Province are currently very promising, as shown in Table 2, below. The 2012-2013 cohort is still completing treatment, but the success rate will be at least 64% and potentially even higher, if all patients remaining on treatment will complete their course.

Table 2.

Rayong Province: Treatment results for Q4 2012 - Q4 2013	Total	%
Treatment success (cure and completion)	23	64%
Loss to follow-up	5	14%
Deceased	4	11%
On treatment	4	11%
Total # of patients registered	36	100%

Facilitating bedaquiline's introduction to Thailand: Strengthening technical capacity for the introduction of a new drug to treat extensively drug resistant tuberculosis

The CAP-TB project has worked closely with Thailand's Bureau of Tuberculosis (BTB) to bring bedaquiline into the country for extensively-drug resistant tuberculosis (XDR-TB) and other complex drug-resistant TB patients. Bedaquiline is the first new drug to be approved for tuberculosis in over 40 years, and the first drug ever to be approved for drug-resistant tuberculosis. It has been found to be effective in curing MDR-TB patients in clinical studies, and its use has now expanded through the USAID-Janssen Bedaquiline Donation Program. This program enables governments to access bedaquiline for free from the Global Drug Facility, as long as there are measures in place at the country level to address the WHO's implementation guidelines for bedaquiline. These measures include developing a protocol with clear inclusion and exclusion criteria; developing guidelines for handling drug side effects; and ensuring informed consent for all patients.

CAP-TB Thailand's strategy for strengthening provincial TB/MDR-TB teams will also be adapted for the BTB's "XDR-TB Centers", which will enroll patients on bedaquiline treatment. Thus, the project's strategy in Thailand has aligned very well with the USAID-Janssen Bedaquiline Donation Program. The project will also continue to work closely with the BTB to ensure that clinical sites are trained and prepared to treat patients with this new drug. As of 29 October 2015, the BTB has issued payment for the first shipment of drugs, which are estimated to arrive in Thailand within 4-6 months (FY16 Quarter 2).

Annex I: Summary of accomplishments against the work plan and targets

			China			
PMP	CAP-TB	Indicator description	Target FY15	Achievement		Explanation
				Number	%	
9	2	Number of individuals reached with TB prevention and treatment messages, through outreach and small group activities	5,858	14,407	246%	The result significantly exceeded the target because: 1) 45% of the total results (6,546 individuals) reached by big-group events. It is hard to predict and control the number of participants at the open, public places; 2) YAI and No. 3 hospital assigned more peers and nurses than before to conduct one-on-one counselling; 3) Zhenxiong Shiyan High School initially planned to cover a few classes of students and finally expanded to all the students of the school.
	3	Number of individuals referred to TB- and MDR –TB related services	200	540	270%	Number of referrals here include referrals from the TB clinical services back to the community support services as well as the ones form the community to TB clinical services. Referrals between five points of services in Zhenxiong are also tracked. The target was under-estimated also because referral data was not available for our estimation for new CAP-TB sites in Zhenxiong.
13	5	Number of facilities with quality infection control standards with USAID support	7	5	71%	Fuhai Community Health Center, No.3 Hospital, TCC and Zhenxiong CDC TB Clinic have fully met quality infection control standards. Z met the minimum quality standards by enforcing better management of patients in the waiting areas, using disinfectants as well as wearing masks. Infection control at Boji THC and Miaoshan village clinic were assessed. Recommendations for improvement were provided, However, they didn't meet the standard at the end of FY15.
	6	Percentage of households with MDR-TB patients meeting quality infection control standards	100%	100%	100%	
7	9	Number of MDR-TB cases diagnosed	65	96	148%	Kunming No.3 Hospital didn't pass EQA for their TB laboratory work in FY14.Their diagnosis for MDR-TB was not officially recognized by the CDC system when the target for this indicator was developed. However, the hospital passed EQA at the beginning of FY15. Since then, CAP-TB project has accepted No.3 Hospital for its number of MDR-TB cases diagnosed, increasing the number of cases diagnosed above the original target.

			China			
PMP	CAP-TB	Indicator description	Target FY15	Achievement		Explanation
				Number	%	
10	11	Number of new MDR-TB diagnosed patients initiated on treatment	45	73	162%	The target was under-estimated for the same reason for overachievement for PMP #7 above.
16	12	Number of USAID-supported facilities with strengthened MDR-TB referral system	25	23	92%	
	13	Percentage of successful referrals	85%	61%		Referral success rate was above 80% for most program sites. However, referral success from YACC back to community and from No. 3 hospital and TCC to ZXCDC remained low, because 1): YAI, a new CAP-TB partner was focused on TB screening and diagnosis in FY15 and will not allocate resources to strengthen referral success for their patients until next year; 2): Many TB patients from Zhenxiong who were diagnosed by No. 3 hospital or TCC have been staying in Kunming and thus have not returned to Zhenxiong for follow-up..
17	14	Number of individuals trained in TB-case-finding activities	196	201	103%	
18	15	Number of individuals trained in programmatic management of MDR-TB	148	411	278%	CAP-TB's trainings through the Union contribute significantly to the over achievements. CAP-TB planned for a small group of physicians as participants for the Union's trainings when the target was developed. The heads of the CAP-TB partners (Kunming No.3 Hospital, Zhenxioong County Hospital and Yunnan AIDS Care Center) considered increasing more seats for all the local physicians to benefit from such a rare opportunity to learn from a TB expert well known at the international level, without adding more training cost for CAP-TB to pay. The head of Yunnan AIDS Care Center even invited HIV/AIDS doctors from all over Yunnan Province to attend the MDR-TB management training.
19	18	Number of local organizations provided TA for strengthening community PMDT	10	10	100%	

			China			
PMP	CAP-TB	Indicator description	Target FY15	Achievement		Explanation
				Number	%	
20	21	Number of individuals trained on the collection, use, and analysis of data and strategic information for the management of the TB program	50	56	112%	
21	22	Number of operational research studies supported with USAID funds	1	2	200%	Clinical audit operational research. TB diagnosis study among PLHIV by using GeneXpert
22	23	Number of studies published or conference presentations given as a result of USAID support for research programs	0	2		Screening of patients with diabetes mellitus for TB in community health settings in China by Dr. Lin Yan accepted for publication in Tropical Medicine & International Health Dr. XU Lin, Director of Yunnan CDC TB Center/Secretary General of YATA, gave an oral presentation on the patient-centered approach that CAP-TB China has implemented with USAID support at the 45th Union World Conference on Lung Health (WCLH 2014) in Barcelona, Spain dated 28 October – 1 November 2014;
24	26	Number of private-sector partners working with the national TB control program with USAID support	100	67	67%	63 private clinics in Fuhai Community, Kunming No.3 hospital, Zhenxiong County Hospital , Miao Shan village clinic and YAI

Thailand

PMP	CAP-TB	Indicator description	Target	Achievement		Explanation
				#	%	
9	2	Number of individuals reached with TB prevention and treatment message in USAID-supported project areas	600	1,859	310%	The reported numbers included people reached through small group activities and World TB Day events. This year, Rayong Hospital held a three-day health promotion event to educate the public of several diseases, including TB, in collaboration with Tapong Subdistrict Administrative Organization. The 3-day event resulted in a higher achievement
15	8	Number of laboratories provided with technical assistance for the roll-out of new diagnostics	4	4	100%	Initial Assessment was conducted for four laboratories in the four primary hospitals: Rayong, Klaeng, Ban Khai and Mabtapud to assess laboratory practice for TB and MDR-TB diagnosis in accordance with Laboratory Accreditation (LA) standards and to assess the need for technical support to strengthen TB and MDR-TB diagnosis.
7	9	Number of MDR-TB cases diagnosed during the reporting period (both by conventional and molecular)	30	35	117%	Twenty-five people, out of 230, have been tested positive for Rifampicin resistance using GeneXpert. In addition, 10 people were diagnosed with MDR-TB using conventional DST.
18	15	Number of individuals receiving training in programmatic management of MDR-TB	60	160	267%	The target was estimated based on one project site in Rayong. During implementation, the project had opportunities to hold case conferences with Bangkok Metropolitan Administration and Makarak Hospital. In addition, Village Health Volunteers Training, which raised the number of individuals who received PMDT training.
	13	Percentage of successful referrals	80%	66%		Calculated as # of cases received services at the four hospitals divided by total cases referred to and amongst the four hospitals reported for October 2014 – September 2015, FY15. During the first six months, the percentage of successful referrals was much lower than expected (38%), prompting the project recheck the partners' understanding of the reporting forms and rethink the way of calculating the total number of referrals. It was noted that there was a possibility of duplication of referrals, which may have led to the low proportion of patients "received" who had been referred. Therefore, for the second half of FY15, the project applied a new, more accurate method of counting to address the error; the referral success rate was 93%, which brought the percentage of the entire FY15 to 66%.
	16	Number of individuals trained	30	26	87%	The target was estimated based on expected participants of the Patient-Provider Communication Training. However, some could not attend due to work obligations.

Annex II: Publications and Abstracts

Peer-reviewed publication:

Lin Y, Innes A, Xu L, Li L, Chen J, Hou J, Mi F, Kang W, Harries AD. Screening of patients with Diabetes Mellitus for Tuberculosis in Community Health Settings in China. *Trop Med Int Health*. 2015 Apr 15. [Epub ahead of print]

Abstracts that will be presented at the 45th World Lung Conference (International Union Against Tuberculosis and Lung Disease)

D. Punpiputt, S. Chareonsiri, J. Thibbadee, J. Indrasap. Targeted, repetitive education to improve MDR-TB knowledge retention in Rayong, Thailand. [oral presentation]

M. Li, X. Zhao, L. Li, M. Ma, M. Li, C. Du, Z. Xu, A. Innes. A patient-centered TB counseling strategy impacts outpatient follow-up in Yunnan, China. [poster presentation]

L. Xu, L. Li, Z. Xu, C. M. Wong, Y. Guo, A. Innes. Barriers and facilitators to treatment adherence among MDR-TB patients in Yunnan, China. [poster presentation]

L. Xu, Z. Xu, Z. Yu, W. Zhang, Z. Huang, L Li. G. Nie, A. Innes. 57 Zone: Using social media in China to empower TB patients for treatment success. [oral presentation]

S. H. Aung, P. W. Tun, N. Naung, K. Z. Aye, K. S. Win, A. Innes. Mobile health as a tool to strengthen case finding and treatment success for MDR-TB in Myanmar. [electronic poster (oral) presentation]